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Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, D.C. 20554

Docket 14185  
FCC 64-919  
56954

In the Matter of )

Revision of FM Broadcast Rules, )  
Particularly as to Allocation )  
and Technical Standards )

Docket No. 14185

40 FCC  
888  
(1964)

FOURTH REPORT AND ORDER

By the Commission: Commissioner Cox absent.

3RR201  
1571

1. The Commission has under consideration its Third Further Notice of Proposed Rule Making (FCC 64-70) issued in this proceeding on February 3, 1964 and the comments, data, and reply comments filed in response thereto. The purpose of this Notice was to set forth proposed rules concerning increased facilities for existing FM short-spaced stations and to propose specific Table of Assignments for Alaska, Hawaii, Puerto Rico and the territories. The final notice of proposed rule making on the remaining matter to be concluded in this overall FM proceeding, rules governing the educational channels, will be issued in the near future.

2. The time for filing comments was specified as March 27, 1964 and for reply comments as April 10, 1964. In an Order issued on March 25, 1964 (FCC 64-240) these dates were extended to May 11, 1964 and May 26, 1964, respectively. In addition, this Order included a request for comments on a proposal advanced by the engineering firm of Kear and Kennedy concerning provision for site changes for existing short-spaced stations, and for the use of high antenna heights. Comments were filed on behalf of about 90 existing FM stations and a number of organizations and networks. Careful consideration has been given to all the comments and data submitted by all interested parties. Many comments included engineering showings which were particularly helpful.

Hawaii, Alaska, Puerto Rico and the Territories

3. Appendix A to the Third Further Notice of Proposed Rule Making contained proposed Tables of Assignments for Hawaii, Alaska, Puerto Rico and the Territories. It was proposed to consider Hawaii, Alaska and Guam in Zone II and Puerto Rico and the Virgin Islands in Zone I. No oppositions were filed to the proposals for Hawaii, Alaska and Guam and these will be finalized. Comments were filed in support of the proposed assignments in Arecibo, Ponce and Fajardo in Puerto Rico. All existing stations in Puerto Rico which commented supported the assignments of their channels and stated that any modification of the outstanding authorizations for the stations would require a hearing in light of the requirements of Section 316 of the Communications Act.

4. American Colonial Broadcasting Corp., an applicant for a new FM station in San Juan, proposes a completely different allocation table for Puerto Rico and the Virgin Islands, which in part proposes 11 assignments for San Juan. American urges that virtually the entire area of Puerto Rico is enclosed within a 25-mile area from the four cities of San Juan, Ponce, Mayaguez and Arecibo and that the assignment of 11 channels to San Juan, with a population of 542,156, is a fair distribution of available facilities since it represents about one-half the population of Puerto Rico and would receive one-half of the assignments to the other cities. The plan which American proposes contains 5 assignments more than the Commission's plan. It contains 5 additional assignments in San Juan and one additional in Arecibo and Ponce, but does not provide for a number of cities in the Commission's Table. The price paid for these additional assignments is in our judgment too high. This is so because assignments are not made to the following cities; Caguas (with a population of 32,000), Coamo (12,000), Manati (9700) and Humacao (8,000). In addition, Class A assignments are substituted for Class B assignments in Fajardo (pop. 12,000), Guayama (19,000), San German (7800) and Utuado (9900). The difference in the number of possible assignments is further reduced since under the Commission's plan at least one Class A channel can be added. For example, in the event a need arises for an assignment in Vieques, Channel 221A may be assigned to that community. Another drawback to the Table proposed by American is the rather close spacings in a number of assignments such as those of Channels 236 and 266 to Ponce, which may seriously limit the availability of good antenna sites.

5. Central Broadcasting Corporation, permittee of radio Station WUPR(AM) opposes that portion of the American proposal insofar as it would substitute Channel 221A for 286 at Utuado. Central urges that this city of 9,870 is located in a barrio with a population of 40,449, that its principal industry is agriculture, that the terrain is irregular, that the population is sparse and the available revenues are small, and as a result there is a need for a Class B assignment rather than a limited-area station as proposed by American. It states that it plans to file an application for a new FM station at Utuado. San Juan Broadcasting Corp., and Continental Broadcasting Corp., both prospective applicants for a new FM station in San Juan, support the American allocation plan for Puerto Rico, especially insofar as it assigns 11 channels to San Juan, for the reasons given by the proponent of the plan.

6. The San Juan area (including Rio Piedras and Bayamon) has 9 existing FM stations. The American proposal would add 5 additional assignments to this city. We are of the view that disadvantages of the proposal outweigh the advantages of the additional assignments in San Juan and the other two large cities. One of the chief values in an assignment table is the ability to reserve assignments for future use in smaller communities, which may not be ready for the construction of stations but which may well ultimately need them for local expression, and to prevent the concentration of all the available facilities in the larger metropolitan areas. For the above reasons we are not adopting the American proposal.

7. This party also suggests that the minimum power for Class B stations in Puerto Rico be lowered from 5 kilowatts to 3 and that the maximum antenna height be raised to 1000 feet rather than 500 feet. It argues that lowering the power minimum will encourage the establishment of new stations and that raising the antenna ceiling will not unduly curtail service where sites are used at elevations in the order of 1000 feet and more, as would the 500 foot limitation.

8. Radio Americas Corp., licensee of Station WORA-FM, Mayaguez, supports the Zone I spacings for Puerto Rico but urges that Zone II facilities (100 kilowatts power and 2000 feet antenna height) be authorized. <sup>1/</sup> Radio Americas submits a study of the Commission's proposed assignment table for Puerto Rico and points out the following: that there are no co-channel or first adjacent channel assignments in Puerto Rico; that the only first adjacent channel separations between Puerto Rico and the Virgin Islands conform to the Zone II spacings; that 9 of the 22 second adjacent channel spacings meet the Zone II requirements with the lowest spacing 43 miles; and that 6 of the 10 third adjacent channel spacings meet the requirements of Zone II with the lowest being 40 miles. Illustrations are presented to show the effects on interference for two stations 40 miles apart with Zone II facilities and on both second and third adjacent channel assignments. In the case of the stations two channels removed the area of interference occurs around the transmitter site and represents about 16% of the area gained by the first station. In the case of the stations three channels removed the area of interference is shown to be negligible since it extends only about 2 miles around the site of the interfering station.

9. We are aware of the special terrain situation which exists in Puerto Rico, with large mountains running throughout the central portion of the Island and the communities located at low levels mostly along the periphery. We also recognize that the best sites for many of these cities are on the high elevations inland. However, we are not convinced that this Island should be considered Zone II for the purpose of permitting all stations to operate with the higher powers and antenna height, especially since we are retaining the Zone I spacings in order to make sufficient facilities available. At the present time only one FM station (that of Radio Americas) has an antenna height of over 1000 feet above average terrain. Of the 11 pending applications, only 2 have specified antenna heights over 1000 feet. Nonetheless, in order to encourage the use of suitable high antenna sites without unduly restricting the authorized

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<sup>1/</sup> These comments were filed on May 14, 1964, three days after the specified time for such filings. Radio Americas stated that due to an inadvertence they were not submitted on May 11 even though they had been prepared before that time, and requests that they be considered. These comments are accepted and are being considered herein.

power, and in order to take advantage of the favorable assignment situation on the Island, we believe we would be justified in making an exception to the power reduction necessary for antenna heights above 500 feet in Zone I. We will therefore permit a power of 25 kilowatts (14 dbk) for antenna heights up to 2000 feet above average terrain and the equivalent of these facilities (as determined by the same distance to the 1 mv/m contour) for heights above 2000 feet. <sup>3/</sup> We do not believe that the minimum power requirement should be lowered from 5 kw to 3 kw. This difference should not represent a hardship for applicants in view of the small difference it represents.

10. V.I. Industries, Inc., licensee of radio Station WSTA, St. Thomas, supports the proposal to establish a Table of Assignments for the Virgin Islands and states that it will file for an FM station on channel 250 if it is adopted. V.I. Industries contends that three channels are not warranted for Charlotte Amalie, which has a population of less than 18,000; nor is a total of 6 channels warranted for the Virgin Islands, which has a population of about 40,000 persons. <sup>2/</sup> It therefore recommends that a total of 4 assignments be made to the Virgin Islands. Two parties point out that two of the Virgin Island assignments are on Class A channels. We do not believe there is any need to mix the assignments here. In view of the showing made by V.I. Industries we are assigning 4 channels to the Islands, two each at Charlotte Amalie and Christiansted.

11. In view of the foregoing, we are adopting the tables for Alaska, Hawaii, Puerto Rico, and Guam as outlined in the attached Appendix. <sup>4/</sup> The other required changes in the rules, such as the Zone designation, also appear in the Appendix.

#### Existing Short Spaced Stations

12. With respect to existing FM short-spaced stations (authorized prior to August 1, 1962) and in recognition of the needs for increased facilities for such stations, especially those which are moderately short-spaced and those which could have increased their facilities under the old rules, the Commission invited comments on alternative methods to obtain these ends. It was stated that it could adopt some variation of one of the plans discussed without further notice of rule making. It also discussed the possibility of eliminating or improving short spacings by means of channel shifts or site changes.

13. The great majority of the comments favored one or the other principal methods for authorizing increased facilities for existing short-spaced stations. Some recommended variations or modifications of these plans. While parties were divided as to which alternative (or modified alternatives) should be adopted by the Commission, with very few exceptions they were all in agreement that some relief from the present rule which "freezes" all short-spaced stations to the equivalent of their existing facilities, should be granted by the Commission. The National Association of FM Broadcasters concludes that at the present

<sup>2/</sup> According to the U.S. 1960 Census the population of Charlotte Amalie is 12,880 and that of the Virgin Islands is 32,099.

<sup>3/</sup> In Zone I a station would be authorized 1.6 Kw for an antenna height of 2000 feet.

<sup>4/</sup> Channels 281 and 286 have been switched between Ponce and Utuado to avoid an I.F. difference problem in Ponce.

time there is not enough information available to determine which of the Commission's alternative solutions, if any, is best designed to accomplish the desired goal. They urge the establishment of an Industry Committee to work with the Commission in gathering data and in recommending a particular course. We do not believe that delaying a decision in this matter or establishing a committee as proposed would serve any useful purpose. National Broadcasting Company submits that a further notice should be issued because the notice "does not provide a concrete basis for meaningful study because of the undesignated possible channel shifts; allocation of new stations, if any; possible power increases on a case-by-case basis; and possible variations of the plan presented in the Notice, which the Commission indicates it may adopt without further notice of rule making." It urges that the Commission issue a further notice with specific proposals which "lend themselves to significant evaluation." We do not believe the NBC suggestion is feasible. It is not possible to submit the type of detailed information it seeks since this would depend on the applications and requests filed by licensees after the adoption of a set of rules. As to the alternatives presented by the Commission and the variations discussed, we are of the view that they do form a basis for significant evaluation, as has been done by many other parties. The variations of the principal alternatives were described in sufficient detail to indicate their effects. Thus, the Commission in the Notice stated in connection with the horizontal increase alternative, "This could include spacings below which no increases would be permitted or horizontal increases to values below the present maximums". We therefore do not believe that there is any necessity for a further notice of proposed rule making.

#### Alternative One: General Horizontal Increase

14. The first alternative advanced by the Commission was one which would permit all short-spaced stations to increase facilities up to the maximums authorized in the rules for the Class of station and the Zone involved, without regard to claims of interference by any existing station. It was pointed out that three major benefits would flow from this approach: that there ultimately would result a high degree of competitive equality among stations of the same class, that on an overall basis, more people would gain new or improved service than under any plan, and that this plan would be the least burdensome both for the Commission and the applicants seeking improved facilities for their stations. The disadvantages recognized in such a plan were that a hardship would result to licensees who cannot afford to increase facilities at the time one or more stations to which there is a short spacing file for such increases, that stations having the greatest facilities prior to a horizontal increase may lose "interference-free" service areas in the direction of others which previously had very limited facilities, and that Class A stations may lose substantial service areas from the increases in Class B or C stations, particularly when these latter stations operated previously with limited facilities.

15. A large number of parties supported the horizontal increase plan. In most cases engineering showings were submitted which revealed that the plan would result in greatly increased service areas for all the stations involved with little or no interference caused. In those cases where increased interference was caused it was greatly outweighed by the increased coverage and the

improved service within the former service range, due to the greater signal strength available from the greater power and antenna heights. Some argued that this method was the least restrictive and therefore should be adopted. Others gave evidence of the advantages listed by the Commission for this method. Some conceded that there may be cases where some interference would result within the 1 mv/m contour of other stations, but urged that since the across-the-board plan treats all the same way and has other advantages, there is no reason to return to the "protected contour" concept. A group of parties supported this alternative but urged that increases be permitted up to the maximums only provided that mutual interference would not occur within the 64 dbu contour. They recommended that the power or height be limited to prevent this interference unless the stations involved agree to accept such interference. The significance of the 64 dbu is as follows. Under the old maximums for former Area I (20 kw and 500 feet) the protected contour of 1 mv/m (60 dbu) extends 28 miles. Under the new maximums for Zone I (50 kw and 500 feet) at this same distance the predicted contour would be 64 dbu. Thus, no interference would occur within the old 1 mv/m contour (60 dbu) or the new 64 dbu contour if the proposal were to be adopted. In all the engineering examples given by these parties there was no interference to the old 60 dbu (1 mv/m) with a few minor exceptions. A. Earl Cullum, Jr., one of the proponents of this amended horizontal plan, made a showing involving the short spacings of 6 existing stations. In only 3 of 14 short spacings would there be an invasion of the new 64 dbu contour if all the stations were to go to the maximums permitted in the rules. It was somewhat worse in the two examples given for Zone II.

16. A number of disadvantages were pointed out concerning Alternative I. Some parties stated that under the old rules parties selected facilities which were related to the economics and general needs of the areas, and as a result of the disproportionate nature of the power increases which could result from this plan many highly urbanized areas would suffer loss of service. Some urged that stations which came into being at a late date accepted less than maximum facilities in order to prevent or minimize interference, and that this plan would be unfair to the former stations. Some showed that interference could occur within the existing 1 mv/m contour. For example, WTAD-FM in Zone I (Quincy, Illinois) has facilities slightly above the maximum for Zone I and so cannot get greater facilities. This station showed that in the event another station in Zone II were to go to the maximum facilities for that Zone there would be an invasion of its existing 1 mv/m contour. It urged therefore that a Class C station should be restricted to facilities no greater than permitted by alternative II in the direction of a Class B station. Several parties urged that if the horizontal plan is adopted it should be modified to permit only proportionate increases, i.e., by the same ratio. Columbia Broadcasting System suggested that no applications for increases be accepted for a period of three years except those in which the stations concerned have reached an agreement. It was urged that after that period applications should be accepted in which the increase of power at the actual antenna height is no more than 3 times for a Class A station or  $2\frac{1}{2}$  times for a Class B station. These multipliers are proportionate to the increase in maximum power for the classes of stations under the new rules as against the old rules.

17. Some stations were concerned with the situation where Class A stations were already within the 1 mv/m contours of other stations, generally those on channels two or three channels removed. They argued that this plan would only aggravate the existing interference situation. Another disadvantage for Alternative I is that it does not accommodate changes in site location.

#### Simultaneous Increases by Mutual Agreement

18. The Notice proposed as an alternative to the horizontal increase plan one which would permit simultaneous increases of facilities by linked groups of short-spaced stations by mutual agreement among the affected stations. The Notice recognized that this plan would have limited utility because of the need for reaching agreement among the stations and the existence of rather long chains of stations. Another difficulty pointed out was the cases where different classes of stations are involved or where there is a great disparity between the existing facilities of stations. Most of the comments were opposed to this plan. The parties argued that any one station in a chain could hold up all the others involved; that very often this would be done purposely since, as one party put it, stations are "competitive and intrinsically unable to sacrifice their individual self interest". Others asserted that experience with the standard broadcast Class IIIA and Class IV power increases indicates that reliance on this plan is impractical. Several parties pointed out that typical chains in Zones I and II included about 24 stations. These chains did, however, break up into smaller ones of 7 in a group and less, in the event the shortages on the second and third adjacent channels are ignored as proposed by a large number of parties.

19. The comments submitted on this alternative plan convince us that we should not adopt it as the sole means for permitting existing short-spaced stations to improve their facilities. We will consider, however, any such requests on the basis of the showing made by the parties as to how the public interest would be served thereby.

#### Alternative Two: Protection of a Specified Contour

20. Alternative Two, proposed in the Notice, was a method which would require no agreement among stations and which would permit increases in facilities very nearly like those which would have been allowed under the old "protection method". The two differences are that the station with the greater facilities had to assume the other station had facilities equal to its own, in order to affect a more equal set of facilities. The second difference was that the powers and antenna heights were to be obtained from various Tables rather than from propagation curves.

21. A number of parties preferred this alternative over that of the horizontal increase. They submitted that this plan would provide adequate increases while at the same time assuring that no adverse effects are caused to any stations which cannot for economic or other reasons increase their facilities.

They contended that this plan recognizes all the matters which affect transmission such as terrain, power, and antenna systems. Finally, they urged that this method would permit stations latitude in making changes in station sites as a result of changes in zoning, nearby construction etc. In some of the showings submitted in support of this proposal, it is shown that the maximum facilities for the Class of stations can be obtained under this plan as well as under alternative one, and therefore some of the parties supported both alternatives. A number of parties, while supporting this plan, also requested that it be modified in some respects in the event it is adopted by the Commission. For example, some urged that the antenna height to be used should not be that of the average above terrain but that it should be for the particular directions involved. Others urged that we should disregard the second and third adjacent channel spacings. More will be said about this later.

22. There were a number of objections to this second alternative and several problems raised in connection with its operation. Some pointed out that there is a distinct advantage to the party which files first. Kear and Kennedy submit a theoretical arrangement of stations at typical short spacings and show that in Zone I there could be a difference of as much as 3 db (ratio of twice in power) depending on the order of filing. An example in Zone II reveals that there could be a difference of about 5 db (3.16 to one power ratio) in the power authorized for a particular station depending again on the order of filing for the theoretical case depicted. There is a problem of what one assumes for stations which are in different Zones or where one station is a Class A and the others are Class B or Class C. One suggestion made was that the smaller station be assumed to be at the maximum facilities for its class. Another suggestion was that the smaller station be assumed to have at least the minimum facilities for its class. Some parties pointed out that where two stations are two channels removed at short spacings, many times the first one can go up sometimes to the maximum and the second then cannot increase at all. The same thing can occur in the case of a Class B or C station, two or three channels removed from a Class A station, where the former often can increase its facilities while the latter cannot. There are instances where two stations are 400 kc/s apart and neither one can seek an increase because each is within the 1 mv/m contour of the other. Another situation exists where two stations which have small facilities--the one which requests an increase first may obtain a large facility station, while the second station gets a disproportionately small increase. In all these situations, actual examples are given which are not just theoretical considerations.

23. While Kear and Kennedy support alternative one and oppose the adoption of alternative two, they suggest a variation of this latter plan in the form of a Table which indicates the power and antenna height to be authorized depending on the separation between the stations. The Tables submitted are based upon a protected contour but do not involve the power of the short-spaced stations. They point out that this method is a separation method, protects existing stations by mileage rather than power, and does not give any advantage to the party filing first. The general purpose behind the method is very similar to that which we are adopting herein. It is our view that the method adopted is more simple and so is to be preferred. Somewhat similar in effect,

in a limited context, is the plan proposed by Ellis F. Jones, Jr., licensee of WFMG(FM), Gallatin, Tennessee. This party proposed an expanded Table of Separations which included a sub-maximum Class C station, i.e., a station in Zone II which would be authorized the facilities of a Class B station if it met the spacing of the Class B station and not those of the Class C.

#### Miscellaneous Comments

24. A few parties filed comments on matters not directly before us in this proceeding. For example, Williams FM Service, among other things, suggested that when stations presently at facilities above those authorized for their class are transferred, their facilities should be cut back to the authorized maximums. Gerity Broadcasting and Pacifica Foundation replied that this matter was disposed of in an earlier phase of this proceeding and that Williams submitted no basis for reopening this subject. We agree with these parties that this matter is beyond the scope of this particular proceeding. This is also true of suggestions which have been filed requesting the assignment of Class B channels with facilities limited to Class A facilities. This matter, too, was considered and denied in previous phases of this overall proceeding. A few parties suggested that proportional power increases be permitted for short-spaced stations in a particular chain either with mutual consent or irrespective of such consent. No mention is made of how site changes or changes in antenna height are to be handled. These plans have some substantial problems and defects in them. Insofar as mutual consent would be required, the drawbacks are the same as has been mentioned before. In addition, these proposals would still leave unsolved the matter of location of site and antenna height changes. They would be very difficult to administer as well. For these reasons, the proportional power suggestions are denied.

#### Adoption of an Alternative

25. The selection of a particular method for permitting existing short-spaced FM stations to increase their facilities is a difficult one, as evidenced by the almost even division of opinion among the parties filing comments and data. On an overall basis there is not very much difference in the total service which results from the horizontal increase, the protected contour, or the Kear and Kennedy modified protected contour plans. This can be seen from Figures 10 through 13 and Figures 16 through 19 in the Kear and Kennedy comments. The principal difficulty with Alternative One, as may also be seen in these same figures and the showings of other parties, is the interference which can result to stations within their present 1 mv/m contour. While as mentioned, numerous parties showed that in their own situation little interference would result, it is also apparent that the additional interference could result in the loss of existing service and the displacement of listening habits in many communities. On the other hand, the second alternative proposal

also has its drawbacks. A number of these have been enumerated above. From the point of view of processing by the Commission and filing applications by the stations, this method could be cumbersome, especially where a large number of stations file at the same time (a very likely possibility since stations have been frozen at their present facilities since August 1962) or where parties file on the basis of other stations' existing facilities only to find these stations have been granted changes in the meantime. The often large differences in authorized facilities, depending on the order of filing, also disturbs us. While there is no ideal solution to this problem we believe a method which is simple, would not require prior agreement among stations affected, would not destroy existing service (at least within the 1 mv/m contour), and would permit changes in station location is to be the preferred method. We believe a modification of the horizontal method could obtain the desired objectives. Such a system would provide for various powers and antenna heights depending on the spacings between the stations. Such a plan would have many of the advantages of the standard spacing plan and allocation table adopted for standard spaced stations but with smaller and potentially equal service ranges depending on the spacings. Before discussing this table further however, we cover two important matters first.

#### Class A stations

26. A number of parties urged that short-spaced Class A stations be permitted to go to the maximum for that class, (3 kw and 300 feet antenna height) regardless of what is permitted for other classes of stations. In a series of charts for what is believed to be the worst cases of first, second, and third adjacent channel spacings between a Class A and Class B or C stations, Kear and Kennedy show that the impact on the interference to the higher powered station is very small while the Class A station improves its service throughout the old area and extends in service range as well. In the case of a second channel separation between a Class A station and a Class B station of only 15 miles (Figure 3) the increase in the radius of interference to the Class B station is only in the order of less than  $\frac{1}{2}$  mile with both stations going to the maximum facilities.

27. A few parties, mostly stations with facilities greater than presently authorized for the standard spaced stations, objected to any increase for these Class A stations. One party argued that they should not have been granted in the first place. We are, however, faced with an existing situation in which some Class A stations need additional power to adequately cover the community intended to be served. In another objection to increased power for Class A stations a showing is made as to the increased interference to the high-powered Class B station. This increase however occurs in an additional radius of about 0.7 of a mile.

28. After careful consideration of all the data submitted in this proceeding relative to short-spaced Class A stations we conclude that an increase up to the maximum for this Class of station is warranted and would serve the public interest. We will therefore permit any short-spaced Class A station which desires to increase facilities to apply for such increases up to 3 kw and 300 feet or the equivalent of this combination, except insofar as co-channel situations between Class A stations are involved. (There are no first or second adjacent combinations between Class A stations possible under the FM channel arrangement.)

29. Trans America Broadcasting Corp., licensee of KTYM-FM, Inglewood, California, requests permission to increase its power to 40 kilowatts. It urges that it is only 23 miles from second adjacent channel stations KBIG and KGLA, both on Mount Wilson, Los Angeles, and both with power and antenna height greater than the maximum now provided by the rules. It argues that it needs this power in order to obtain the "equivalent coverage" of a maximum Class A station in the absence of interference. It avers that it does not serve the entire community of Inglewood and that listeners have reported difficulty in tuning to the station in the presence of the strong signals from KBIG and KGLA. KTYM-FM presently operates with 390 watts and an antenna height above average terrain of 390 feet. This party is, in effect, asking us to make a special case of a particular Class A station and to permit it to operate with 40 kw power or almost the same as a Class B facility, even though it is only about one half the required separation. This we cannot do. However, we are of the view that the relief offered herein to short-spaced stations will help this station in improving its signal and coverage in the community of Inglewood, since it could under the rules increase its power to about 1.6 kilowatts instead of its present 390 watts.

#### Second and Third Adjacent Channel Problem

30. There are a number of short-spaced FM stations on second and third adjacent channels (400 and 600 kc/s removed). Most of those on second adjacent channels are Class A's near large metropolitan areas such as Los Angeles, San Francisco, New York, Chicago and Philadelphia. In a number of these instances the Class B's are "super-maximum", with the Class A located within the 1 mv/m contour of the large station. The Class A stations could increase their facilities under the horizontal increase proposal but not under the alternative proposal which requires protection of the Class B station's 1 mv/m contour (or protection of a service radius of 40 miles when the 1 mv/m contour is further out than that). Under the former plan the interference to the large station would normally increase a fraction of a mile around the Class A transmitter. There are also a few Class B and Class C stations removed by two channels and at less than the 40 or 65 miles required. All of these could benefit under the horizontal proposal; some, though by no means all, could benefit under the other alternative. Most of the stations which are

short-spaced at third adjacent channel separations (600 kc/s) are near large cities in the crowded sections of the northeast; Washington-Annapolis, Providence-Framingham, Baltimore-Havre de Grace, Hartford-Springfield. A few exist in Zone II. In most of these cases, either proposal would be of benefit to the stations involved and to the public.

31. With very few exceptions, all the parties recommend that short-spacings on second and third adjacent channels be disregarded in any proposal which is adopted. It was pointed out that this interference is usually very small, occurs around the transmitter site of the station causing the interference, and that in any event the small amounts of interference caused are more than offset usually by the advantages of power increases for all stations. One party likened this type of interference to a blanket area problem. Kear and Kennedy in Figures 6 and 7 of their material depict situations between Class B stations with spacings as low as 25 miles. (These figures show the interference area to be a small portion of the entire service area. Earl Cullum in reply concedes that the area of interference is small. However, he points out that in the case of a small station causing interference to a large station, the increase in such interference may mean that the entire community may be lost to the larger station. This is an important factor and has led us to require that standard spaced stations on second and third adjacent channels be located beyond the expected service range of the assigned stations in the Table of Assignments.) However, the situations we are dealing with here are existing ones in which some interference already exists. And as has been shown further, the increase in interference is only in a small ring around the station, in the order of a few miles to less than  $\frac{1}{2}$  mile depending on the relative facilities of the stations involved. (Another great difficulty with taking into account such assignments is this: in the event a station is encompassed by the 1 mv/m contour of another station either under its existing or expanded facilities, the station cannot improve its facilities in any direction, and is thus frozen at its present facilities. In the case of co-channel and first adjacent channel separations this situation cannot occur and a station can usually obtain an increase in some directions.) Because of the restrictions which would be imposed, the usually small amount of additional interference resulting, and the overall benefits to be obtained on balance, we will permit stations to disregard short-spaced stations on second and third adjacent channels in making requests for increased facilities. Several parties proposed that we disregard second and third channel interference except when the two stations are less than 15 miles apart or unless the interference is caused within a station's principal city limits. There are very few cases of such low spacings, and so we do not believe there is need for any exceptions to the general policy. Furthermore, the interference usually is smaller the closer the stations are together. Paul Godley Company suggested that for such channels we protect the 70 dbu contour by not permitting overlap of the 90 and 110 dbu contours with the 70 dbu contour for second and third adjacent channels, respectively. We do not believe this limitation is needed for the same reasons we are rejecting the mileage limitation above.

PLAN ADOPTED

31. After careful consideration of all the comments and data submitted by all parties we are adopting a plan which we believe has facets and advantages of both the horizontal increase and the protected contour proposals. It does not depend on the consent of any other station so that any station may apply for increased facilities at the time it wishes. It affords stations adequate protection of their service to the public. It is a "go-no go" system so that it is not burdensome for either the licensees or the Commission. It provides for substantial increases for many stations and would permit some improvement for most stations. The plan does not create any advantages for the party which files first. This plan would spell out the maximum facilities which every station which is now short-spaced could apply for, depending on the spacings it has with respect to all other stations (and irrespective of the facilities of the other stations). This would be done in accordance with the Table below. If a station wishes to operate with greater ERP than that which would be permitted for its mileage bracket, it may do so (up to the maximum for its class) by directionalizing so as to reduce the radiation in the critical direction to that which would be permitted under the Table. (Directional antennas must meet the requirements of paragraph (d) of Section 73.316, and increase in radiation away from the critical direction shall not exceed 2 db per 10 degrees of azimuth. Where a directional antenna is used radiation in any direction shall not exceed the maximum ERP for the station's class).

FACILITIES TO BE AUTHORIZED FOR SHORT-SPACED FM STATIONS

Class of Station	Separation in Miles		Facilities Authorized	
	Co-Channel	First Adjacent	Power (kw)	Antenna Height (ft)
A to A	45-65	--	3	300
A to A	40-44	--	2	300
A to A	less than 40	--	1	300
A to B	--	50-65	3	300
			50	500
A to B	--	40-49	3	300
			20	500
A to B	--	less than 40	3	300
			10	500
A to C	--	80-105	3	300
			100	2000
A to C	--	60- 79	3	300
			50	2000
A to C	--	less than 60	3	300
			20	2000
B to B	125-150	80-105	50	500
B to B	100-124	65- 79	20	500
B to B	75- 99	50- 64	10	500
B to B	less than 75	less than 50	5	500
B to C	140-170	110-135	50	500
			100	2000
B to C	110-139	85-109	20	500
			50	2000
B to C	90-109	60-84	10	500
			20	2000
B to C	less than 90	less than 60	5	500
			10	2000
C to C	150-180	125-150	100	2000
C to C	120-149	95-124	50	2000
C to C	100-119	75- 94	20	2000
C to C	less than 100	less than 75	10	2000

32. The above plan has all the advantages of the horizontal increase without any of its disadvantages. It also appears to be preferable to any other plans advanced previously. For one thing, except for the horizontal increase plan any other proposal would necessitate more extensive use of directional antennas to protect other short-spaced stations, unless the station involved were willing to use in all directions the limited power it would be permitted in the critical direction. The plan we adopt, by permitting substantial increases for many stations without directionalization, imposes lesser burdens in this respect while at the same time giving a short-spaced station an option to obtain greater facilities by directionalizing if it wishes to do so. The plan also permits stations to move their sites provided they adjust their facilities to meet the Table. Usually, since transmitter moves do not often involve great distances, the station moving will remain in the same mileage bracket. The Table also provides a "floor" on facilities for stations, regardless of spacing. The plan has many of the advantages of the Table of Assignments and the minimum spacing rules for new stations which we have adopted.

33. A study was made of all the spacing problems set out in the comments herein, with a view toward determining whether the plan would be of help to the stations and to the public. We found that in almost all cases stations could get appreciably increased facilities, and in many cases they could go to the maximum for their class (others could go to the maximum except in one direction). Our study revealed very few cases where the plan would result in interference within stations' existing 1 mv/m contours, and, while doubtless there will be some such cases, it appears that they will not be numerous. It is true that the resulting service ranges of short-spaced stations will be less than those which we have provided for new stations; descending in order with the reduced separations; but this is inevitable in dealing with stations assigned under earlier assignment principles, at considerably less than what are now standard spacings. 5/ Considering the advantages mentioned, including the "go-no go" character of the plan and its simplicity, the concomitant advantage to licensees and the Commission and improved service to the public, we are of the view that it clearly is in the public interest and should be adopted.

#### Moves of transmitter sites

34. As mentioned, the plan adopted provides for moves of transmitter sites by short-spaced stations, provided the facilities are adjusted to meet the requirements of the Table. It is appropriate to spell out in more detail the principles which will govern transmitter-site moves.

(a) No new short spacing may be created to standard spaced assignments. While we have taken steps herein to deal with the problems of short-spaced stations assigned under earlier rules, we do not conceive it to be appropriate, in general, to permit any new short spacings to be created

5/ For example, a Class B station with maximum facilities, surrounded by other co-channel Class B stations with maximum facilities at standard spacings, would have a service range of 40 miles, whereas a short-spaced Class B station surrounded by stations at 100 miles (both with maximum facilities permitted under the Table) would have a service range of 26 miles.

even though in other directions spacings might be improved. Any consideration of situations where a slight new short spacing would materially improve a number of existing shortages must be on a case-by-case basis on requests for waiver. The prohibition in this connection extends to creation of new second and third adjacent channel shortages. While we have concluded that this should not be a consideration in situations where it already exists, there is no reason to permit such interference where it did not exist at all within the station's normal service range.

(b) Except where the station involved is (or would be after the move) in one of the low-mileage brackets of the Table ("less than 40", "less than 60", "less than 75", etc.), a move may be made with the station's present facilities unless the move would put the station into a lower mileage bracket. <sup>6/</sup> In connection with such a move, the station may request an increase in facilities up to the maximum for the mileage bracket.

(c) Where a move would shorten an existing substandard separation so as to put the station in a lower bracket, the station must adjust its facilities so as to meet the maximum for that bracket. If it is now lower than the new maximum, it may request an increase up to that figure. Further limitations will apply in the case of stations in the low-mileage brackets, as mentioned in (d) below.

(d) Where a station is (or would be after the move) in one of the low-mileage brackets of the Table, it will be permitted a move which shortens the separation by no more than three miles, without restriction on its facilities other than the maximum provided for these brackets in the Table (e.g., for co-channel Class B stations less than 75 miles apart, 5 kilowatts and 500 feet effective antenna height). If the move is greater than this, the station must reduce its facilities to a level which will be, in the pertinent direction, no more than the equivalent of operation from the former site with the maximum permitted facilities. For example, a Class B station moving closer under these circumstances would have its 1 mv/m contour in the pertinent direction no further out than it would operating from its former site with 5 kilowatts and 500 feet. The stations falling in these lower brackets are not numerous, and it is in these cases--where extremely short separations are involved--that greater restrictions are necessary in order to avoid substantial adverse impact on other stations.

<sup>6/</sup> As mentioned, in general it may be expected that transmitter moves will not usually be of any great distance, and therefore the effect thereof on other short-spaced stations will be small. For example, in the case of co-channel Class B stations about 120 miles apart, a decrease of 10 miles in the separation means a reduction in the service range of the affected station of only 2 miles. Therefore it is not appropriate to impose any over-all reduction from present facilities. (footnote continued on next page)

(e) In connection with any application for change in transmitter site which would increase an existing short separation, the Commission reserves the right to deny such an application if, considering all pertinent factors including effect on other stations, it appears that the public interest would not be served thereby.

Proposals Made in Supplement To Third Further Notice

35. In the Order Extending Time for Filing Comments and Supplement to Third Further Notice of Proposed Rule Making issued in this proceeding on March 25, 1964 (FCC 64-240) there were three proposals made on which comments were invited. First, Kear and Kennedy had proposed a rule which would have permitted existing short-spaced stations to change their sites in the event it became necessary because of zoning or other requirements. The plan we are adopting provides the conditions for moves and so we need not discuss this matter further. The second Kear and Kennedy proposal was to permit stations which as a result of a move wished to increase their antenna height, to utilize powers equal to the minimum for their class up to antenna heights of 750 feet, with appropriate reductions above this height. The Commission invited comments on alternative to this proposal which would have permitted the use of minimum powers for all heights above the maximum in the rules. The purpose of the two latter proposals was to encourage stations to utilize high antenna heights to improve service. Kear and Kennedy point out, and rightly so, that if the minimum power is permitted for any height, stations would soon have a combination of power and height which is greater than those for a standard-spaced station. They therefore recommend that if consideration is given to their proposal to permit minimum power up to 750 feet or above, in no event would the power be permitted to exceed the values determined from Figure 3 of Section 73.333 of the rules. Upon consideration of the comments filed and the plan which we are adopting, we believe that there is no special rule needed along the lines of encouraging high antenna heights. The proposal was apparently prompted by the availability in some areas of particularly suitable tall sites such as the Empire State Building in New York. The rules we are adopting for short-spaced stations do permit a combination of at least 10 kw and 500 feet for the bulk of the short spaced stations now existing. This is roughly equivalent of the 5 kw and 750 feet combination advocated by Kear and Kennedy. In the event some situations exist for which the plan would permit only 5 kw and 500 feet or the equivalent, these can be considered on an individual basis as they come to our attention.

6/ (continued)

However, we do not wish to encourage site changes which will shorten existing sub-standard spacings, and we assume such moves will not be undertaken except for substantial reasons. As mentioned in the text below, the Commission reserves the right to deny any such application if, considering all of the pertinent factors including increased interference, it appears that such a move would not be in the public interest.

Legal considerations

36. For reasons stated at length above, we are of the view that the opportunity afforded by the plan adopted herein for increases in facilities and over-all improvement in service is clearly in the public interest, and that the benefits therefrom outweigh the relatively small amounts of interference which will usually result. As mentioned, it appears that only in relatively few cases would interference be caused within an existing station's 1 mv/m contour. In the Third Further Notice we tentatively discussed the rights of FM licensees to object to applications for increased facilities by short-spaced stations on the grounds that such proposals would cause interference within their 1 mv/m contours. (See FN 5, Third Further Notice.) On reflection, we have decided not to attempt to resolve the rights of such objectors at this time. They instead will be resolved if presented in a specific case.

Deletion of assignment where construction permit or license is surrendered

37. In the Further Notice of Proposed Rule Making issued August 1, 1962 (FCC 62-867) the Commission said with respect to short-spaced stations which turn in their licenses or construction permits:

"We propose to adopt a rule to the effect that, when a construction permit or license for a station on the 80 commercial FM channels is voluntarily relinquished by the holder thereof, or is vacated by final Commission action in a renewal or revocation proceeding, the channel specified in the permit or license will automatically cease to be assigned to the community specified in the Table, and the Commission will give notice of that fact and will issue a Notice of Proposed Rule Making looking toward determination of whether the channel should remain assigned to that community or should be assigned elsewhere."

The above statement of policy does not distinguish between stations which meet the standard spacings adopted in 1962, and those which are short-spaced. In any event, no final rule was adopted in this connection. Nor do we believe that a rule would be particularly useful. The action we take in any situation should depend upon the number of assignments in the area, the need for assignments elsewhere, the shortages involved and other considerations. It therefore appears appropriate to treat these cases as they come up. The plan we are adopting would permit such an assignment to remain in a community where it is needed and would spell out the permissible facilities, in the event another party receives a grant on the assignment in question.

38. We wish to emphasize that we are not in any way departing from the assignment principles previously adopted in connection with the Table of Assignments nor will we entertain petitions to assign channels to communities at spacings less than those adopted. The procedure outlined herein is aimed at permitting existing stations which were licensed under previous rules and standards to increase their facilities and improve the service they are rendering to the public in those cases where the previous rules would have permitted such increases and in some other cases where the public would benefit thereby. The basic principles and allocation plan adopted in the Third Report remain our objectives for the FM broadcasting service.

39. Authority for the adoption of the amendments herein is contained in Sections 4(i) and 303 of the Communications Act of 1934, as amended.

40. In view of the foregoing, IT IS ORDERED, That effective November 16, 1964, Part 73 of the Commission's Rules and Regulations IS AMENDED as set forth in the attached Appendix.

FEDERAL COMMUNICATIONS COMMISSION

Ben F. Waple  
Secretary

Attachment

Adopted: October 7, 1964

Released: October 9, 1964

NOTE: Rules changes herein will be covered by T.S. III(64)-3.

1. §73.202, Table of Assignments, is amended to include the following entries:

Alaska

	<u>Channel Number</u>
Anchorage	263, 267, 271, 288A
College	285A
Cordova	265A
Fairbanks	262, 266
Juneau	282, 286
Ketchikan	290, 294
Nome	262
Seward	276A
Sitka	284

Hawaii

Hilo, Hawaii	246, 250
Kealahakua, Hawaii	221A
Honolulu, Oahu	226, 230, 234, 238, 248
Kailua, Oahu	242
Waipahu, Oahu	222
Lihue, Kauai	224A, 228A
Makawao, Maui	232A
Wailuka, Maui	236

U.S. Territories and Possessions

Guam

Agana	230, 238
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Puerto Rico

Adjuntas	275
Aguadilla	225, 262
Arecibo	293, 297
Bayamon	234, 264
Caguas	277
Coamo	223
Fajardo	243
Guayama	295
Humacao	299
Isabella	268
Manati	245
Mayaguez	231, 248, 256
Ponce	227, 270, 286
Rio Piedras	239
San German	236
San Juan	229, 253, 260, 273, 284, 289
Utuaado	281
Yauco	241

Virgin Islands

Charlotte Amalie	250, 266
Christiansted	258, 291

2. In §73.205, paragraphs (b) and (c) are amended to read as follows:

§73.205 Zones.

(b) Zone 1-A consists of Puerto Rico, the Virgin Islands and that portion of the State of California which is located south of the 40th parallel.

(c) Zone 11 consists of Alaska, Hawaii and the rest of the United States which is not located in either Zone 1 or Zone 1-A.

§73.207 Amendment

3. In §73.207, paragraph (b) is deleted and paragraph (c) is redesignated as paragraph (b).

4. In §73.211, paragraph (b) is added and paragraph (d) is amended to read as follows:

§73.211 Power and antenna height requirements.

(b) Maximum power and antenna height. \* \* \*

(3) In Puerto Rico antenna heights may be used up to 2000 feet above average terrain with effective radiated powers up to 25 kw. For antenna heights above 2000 feet the power shall be reduced so that the station's 1 mv/m contour (located pursuant to Figure 1 of §73.333) will be no further from the station's transmitter than with the facilities of 25 kw and antenna height of 2000 feet.

(d) Existing stations. Stations authorized as of September 10, 1962, which do not conform to the requirements of this section, may continue to operate as authorized; but any application to change facilities will be subject to the provisions of this section, except that the minimum power specified in paragraph (a) of this section shall not apply to an application to increase facilities.

5. A new §73.213 is added:

§73.213 Stations at spacings below the minimum separations.

(a) Stations which are separated from other co-channel or adjacent channel stations less than the minimum distances specified in §73.207 may apply for changes in facilities provided the requested facilities conform with the following table:

# FACILITIES TO BE AUTHORIZED FOR SHORT-SPACED FM STATIONS

Class of Station	Separation in Miles		Facilities Authorized	
	Co-Channel	First Adjacent	Power (kw)	Antenna Height (ft)
A to A	45-65	--	3	300
A to A	40-44	--	2	300
A to A	less than 40	--	1	300
A to B	--	50-65	3	300 Class A
A to B	--	40-49	50	500 Class B
A to B	--	less than 40	3	300 Class A
A to B	--	less than 40	20	500 Class B
A to B	--	less than 40	3	300 Class A
A to B	--	less than 40	10	500 Class B
A to C	--	80-105	3	300 Class A
A to C	--	60-79	100	2000 Class C
A to C	--	less than 60	3	300 Class A
A to C	--	less than 60	50	2000 Class C
A to C	--	less than 60	3	300 Class A
A to C	--	less than 60	20	2000 Class C
B to B	125-150	80-105	50	500
B to B	100-124	65-79	20	500
B to B	75-99	50-64	10	500
B to B	less than 75	less than 50	5	500
B to C	140-170	110-135	50	500 Class B
B to C	110-139	85-109	100	2000 Class C
B to C	90-109	60-84	20	500 Class B
B to C	less than 90	less than 60	50	2000 Class C
B to C	less than 90	less than 60	10	500 Class B
B to C	less than 90	less than 60	20	2000 Class C
B to C	less than 90	less than 60	5	500 Class B
B to C	less than 90	less than 60	10	2000 Class C
C to C	150-180	125-150	100	2000
C to C	120-149	95-124	50	2000
C to C	100-119	75-94	20	2000
C to C	less than 100	less than 75	10	2000

(b) Stations authorized facilities in excess of those specified in this section may continue to operate with such facilities.

(c) Stations may elect to operate omnidirectionally with facilities no greater than the least they should be permitted in any direction under paragraph (a) of this section. Greater facilities (up to the maximum specified in §73.211(b) for their class) may be used if, by use of a directional antenna, radiation in any direction in which a short separation exists is reduced to no more than that permitted under paragraph (a) of this section. Applications for use of directional antennas must be in conformance with §73.316(d); in addition, the increase in radiation off the line between the short-spaced stations shall not exceed 2 db per 10 degrees of azimuth; and in no event shall radiation in any direction exceed the maximum permitted under §73.211(b) for the particular class of station.

(d) Stations will be authorized maximum facilities for their class in those directions in which they are short-spaced to other stations on second or third adjacent channels.

(e) The powers listed in the table are the maximums to be authorized. Antenna heights may be used exceeding those specified in the table for equivalence purposes, provided the effective radiated power is reduced in the amount necessary to place the 1 mv/m contour at no greater distance as determined by use of Figure 1 of §73.333. The antenna height value to be used is that above average terrain and not that in any particular direction. Where antenna heights below 100 feet are encountered (or negative heights) an assumed value of 100 feet above average terrain shall be assumed for the purposes of this paragraph.

(f) The following provisions will govern applications for move of transmitter site:

(1) No application to move will be accepted which creates short spacing to standard spaced stations and assignments less than the distances specified in §73.207, including second and third adjacent channel separations. This provision applies even if in other respects the application would be acceptable under this paragraph.

(2) Stations short-spaced with respect to other stations under §73.207 may apply to move transmitter site, even though by the move the separation would be further shortened, under the following conditions and with the following facilities:

(i) Where the short separation is second or third adjacent channel, with any facilities up to the maximum permitted under §73.211.